2011-2012 **PHYSICS** *Annual Examination*

Section-A

Multiple Choice Questions (MCQ's)

M.marks: 17 | Time:15 Mintues

Q.1 Chooe the correct answer for each from the given options:

(i) The founder of Algebra, a famous muslim scientist born in 780 A.D was ______.
(a) Al-Khwarzmi (b) Al-Kindi (c) Al-Beruni
(d) Naseeruddin Tusi

(ii) One metre is equal to ______ nanometre.
(a) 10^3 (b) 10^6 (c) 10^9 (d) 10^{12}

(iii) ______ is a scalar quantity.
(a) Displacement (b) Force (c) Speed (d) Velocity

(iv) If the velocity of moving body decreases by equal amounts in equal interval of time, how small they may be, the body is said to have ______ acceleration.
(a) Zero (b) Uniform and Positive (c) Uniform and Negative
(d) None of these

(v) If the force acting on a body is double, then the acceleration produced is ______.
(a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) double (d) quadrupled

(vi) If a stone is tied to the end of string and whirled in a circle, the tension in the string provides ______.
(a) Centripetal Force (b) Centrifugal Force (c) Pressure (d) Reaction

(vii) Energy possessed by a body by virtue of it motion is called ______ energy.
(a) Potential (b) Electrical (c) Chemical (d) Kinetic

(viii) If the fulcrum of a lever is between the effort and resistance, it is a ______ class lever.
(a) First (b) Second (c) Third (d) None of these

(ix) The S.I unit of pressure is ______.
(a) Pascal (b) Newton (c) Kilogram per cube metre
(d) Newton metre

(x) The molecules of a solid ______.
(a) Move about haphazardly (b) Remain stationary
(c) Vibrate (d) None of these

(xi) If the frequency of waves f = 30 cycles per second and wave length $\lambda = 0.2$ metre, then the velocity of wave is ______.
(a) 6 ms^{-1} (b) 150 ms^{-1} (c) 0.0066ms^{-1} (d) 6 ms^{-1}

(xii) The pupil of eye controls ______.
(a) The focal length of the eye (b) The range of accommodation of eye
(c) The distance of distinct vision (d) The amount of light reaching the eye

(xiii) Electromagnetic waves carry ______.
(a) Wave length (b) Frequency (c) Charge (d) Energy

(xiv) The commercial unit of electric energy is known as ______.
(a) Ohm (b) Volt (c) Kilo watt hour (d) None of these

(xv) To measure eurrent in a circuit an ammeter is always connected ______.
(a) In series (b) In parallel (c) In any way (d) Parallel to voltmeter

(xvi) The materials in which electric current can flow easily due to their low resistance are called ______.
(a) Insulators (b) Semi conductors
(c) Conductors (d) None of these

(xvii) The emission of rays from the nucleus is called ______.
(a) Chemical process (b) Atomic process
(c) Radio activity (d) Atomic dispersion

Section-B

(Short Answers)

Note: Write short answer any "EIGHT" of the following question. Each question carries 5 marks.

Q.2 What is the importance of standard units in every day life?

Q.3 Define Scalar and Vector quantities.Give five examples of each.

Q.4 Derive equation: $S = Vit + \frac{1}{2}at^2$

Q.5 State Newton's First Law of Motion, giving example from every day life.

Q.6 Define Torque, what are the factors on which it depends?

Q.7 An object of mass 3 kg is moving on a rough surface with a velocity of 16 m/s. It covers a distance of a of 20 m before coming to rest. Find the opposing force.

Q.8 Define Kinetic Energy, derive and expression for the Kinetic Energy of a body in motion.

Q.9 What is an inclined plane? Determine the mechanical advantage of an inclined plane.

Q.10 Convert 5°F to its equivalent temperature on Celsius and Kelvin Scales.

Q.11 What is the difference between a real and virtual image?

Q.12 State Coulomb's Law and define the unit of charge.

Q.13 Explain what is meant by magnetic field?

Section-C

(Descriptive)

Note: Attempt any TWO of the following questions in detail.Each question carries 14 marks.

Q.14 (a)Derive an equation for the mass of the earth by applying law of gravitation.

(b) A series circuit consisting of three resistors having 40 ohms,50 ohms and 20 ohms Respectively, is conected across a voltage source of 120 V.Find the current in the circuit and potential difference across each resistors.

Q.15 (a) Define stress, strain, Hook's law and youngs modulus.

(b) An auto mobile is running on a circular high way with a velocity of 120 m/s.The radius of the high way is 1000 m. What is the centripetal acceleration.

Q.16(a) Describe the construction and working of compound microscope.

(b) An exit ramp on a major free way is 200 m long and upper end is 10 m above the high way. Determined the effort required to move a truck with trailer whose mass is 2000 kg. to the end of ramp.